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Remarks

Claims 10-14, inclusive, are under consideration.

Claim 10 has been amended to further define the claimed invention and also to obviate the rejection under 35 U.S.C. 112, second paragraph. Full support for the claim amendments can be found in the specification at page 5, lines 11-17.

The rejection of claims 10-14 under 35 U.S.C. 103(a) as unpatentable over Cote in view of Rajala is not warranted and is hereby traversed. Claim 10, as amended, and thus also dependent claims 11-13 are readily distinguishable over Cote which shows the use of a pressure transducer 19 in conjunction with pneumatic loop 18 and rocker arm 14 to maintain web tension. In contradistinction, the presently claimed device determines, substantially instantaneously, the acceleration (negative or positive) of the dancer arm and applies appropriate torque to counterbalance the acceleration force so that the dancer appears to have "zero mass" vis-a-vis web dynamics. Cote clearly does not show such a web tensioning device as recognized by the Examiner.

Rajala does not cure any of the deficiencies of Cote as a reference against these claims.

First of all, the Examiner's interpretation of the teachings of the newly-cited Rajala reference is incorrect. Rajala does not teach control of a dancer roll so as to compensate for the effects of acceleration of the dancer roll by detecting the magnitude of the acceleration and applying a torque to the dancer arm. Rajala monitors web tension incrementally (col. 3, lines 1-2; col. 5, lines 41-57), as well as dancer position vertically (FIG. 2; col. 7, lines 40-49), dancer roll translational velocity (col. 8, lines 51-54), and web velocity (col. 8, lines 60-65). The Rajala disclosure contains no suggestion whatsoever to measure the acceleration of a pivotably mounted dancer arm or any means for doing so. Thus, even the attempted combination of the teachings of Cote and Rajala would not have suggested to one of ordinary skill the presently claimed web tensioning device.

Rajala also fails to disclose or suggest an angular position sensor as presently claimed. The dancer of Rajala moves up and down only vertically as can be readily seen in FIG. 2. Thus one of ordinary skill would not have had any motivation, based on Rajala, to

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replace the piston/cylinder assembly of Cote (col. 3, lines 38-43) with any of the complex web tension sensors described by Rajala. Any such replacement would have resulted in an inoperable device.

Cote does not teach or describe an angular sensor "used to determine the position of the dancer roll." Instead, the dancer roll in Cote is positioned as required to maintain a predetermined tension in the web based on the caliper of the web material. Col. 1, lines 54-58.

Additionally, neither Cote nor Rajala show or suggest means for the detection of the acceleration of the dancer arm and the application of a compensating torque component therefor.

Regarding claim 11, there is no basis in the record for the unsupported assertion that "any position sensor including that taught by Rajala is seen to be an encoder." There is no evidence of record that one of ordinary skill would see it that way. In addition, claim 11 calls for a particular type of encoder, to wit, one that senses relative angular displacement of the dancer arm. Neither Cote nor Rajala show or suggest such an encoder. Also, in Rajala there is no angular displacement of the dancer (see FIG. 2).

Regarding claim 13, Cote at col. 3, line 33, mentions an electric spindle drive. Claim 13, on the other hand, calls for a servo motor that is an electric motor.

Regarding claim 14, the Examiner's unsupported testimony as to what "would have been obvious" is of no moment and cannot support a rejection. None of the prior art of record shows or suggests a device that uses a servo motor that is a limited angle electric motor operably associated with a dancer arm for pivoting the dancer arm by the application of torque in response to the control output signal generated in response to acceleration of the dancer arm.

The further rejection of claim 12 under 35 U.S.C. 103(a) as unpatentable over Cote in view of Rajala and further in view of Kawabata et al. is likewise unwarranted, and is hereby traversed. The distinctions over Cote and Rajala discussed hereinabove vis-a-vis claims 10 and 11 are equally applicable to claim 12. Kawabata et al. does not cure any of those deficiencies of Cote and Rajala as references against this claim.

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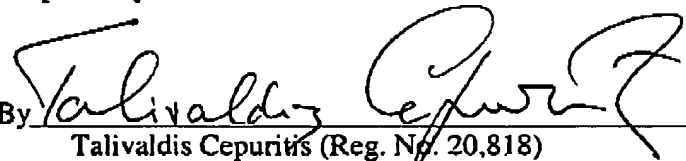
Besides, Kawabata et al. is not combinable with Cote because Cote adjusts web tension by positioning the arm 14 pneumatically whereas Kawabata et al. teach tension adjustment by repositioning the rotational centers of the guide rollers and the dancer rollers relative to one another so as to change the force components due to gravity. One of ordinary skill would have recognized that an entirely different tensioning mechanism is involved. Also, as noted by the Examiner, Cote does not disclose an incremental rotary optical encoder. As a matter of fact, Cote does not disclose any type of angular position sensor. Accordingly, one of ordinary skill would not have had any motivation whatsoever to replace the pressure transducer 19 of Cote with an incremental rotary optical encoder. Any such replacement or substitution would have resulted in an inoperable device. Moreover, Kawabata et al. does not teach the use of an incremental rotary optical encoder. Kawabata et al. only teach the use of a distance sensor, not an optical sensor, for its system. See, for example, col. 4, lines 11-18.

All of the applied references show devices that monitor web tension and rely on a tension determination for adjustment. In contradistinction, the present web tensioning device does not monitor web tension but instead maintains a predetermined web tension by detecting acceleration of a dancer arm that engages the web. This is clearly an unobvious departure from the web tensioning devices of the prior art.

The outstanding rejections should be withdrawn, and this application passed to issue. In the event the Examiner deems the foregoing not persuasive, entry of the present claim amendments for purposes of an appeal is requested.

Respectfully submitted,

March 29, 2006

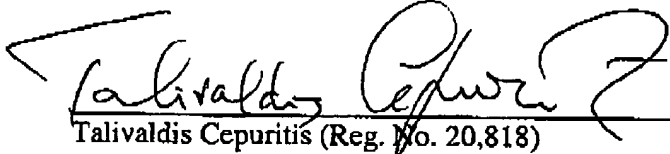
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